

Claims Listing

This listing of claims replaces all previous listings.

1. (canceled)

2. (currently amended) An apparatus ~~according to claim 1~~ for compressing and storing an oxygen-enriched gas, comprising:

a concentrated oxygen source having oxygen-enriched gas therein, wherein said oxygen enriched gas contains at least about 50% oxygen by volume;

a radial piston compressor operatively connected to said oxygen source to receive the at least 50% oxygen by volume gas therefrom, said radial compressor being capable of compressing said oxygen-enriched gas to a high pressure; and

a high-pressure storage container for portable storage of said high-pressure oxygen-enriched gas;

wherein said oxygen-enriched gas is prioritized by a portion thereof being capable of being fed to a person and a portion thereof being capable of being fed to said radial compressor, said prioritization includes a determination of a minimum oxygen concentration of said oxygen enriched gas by an oxygen sensor and the operation of said radial compressor being terminated when said enriched oxygen gas is below a predetermined oxygen level.

3. (currently amended) An apparatus ~~according to claim 1~~, for compressing and storing an oxygen-enriched gas, comprising:

a concentrated oxygen source having oxygen-enriched gas therein, wherein said oxygen enriched gas contains at least about 50% oxygen by volume;

a radial piston compressor operatively connected to said oxygen source to receive the at least 50% oxygen by volume gas therefrom, said radial compressor being capable of compressing said oxygen-enriched gas to a high pressure; and

a high-pressure storage container for portable storage of said high-pressure oxygen-enriched gas;

including a buffer tank, said buffer tank operatively connected to said oxygen source and to said radial compressor, wherein said oxygen-enriched gas is prioritized by a portion thereof being capable of being fed from said buffer tank to a person and a portion thereof being capable of being fed from said buffer tank to said radial compressor, said prioritization includes a determination of the oxygen concentration of said oxygen enriched gas by an oxygen sensor and the operation of said radial compressor being terminated when said enriched oxygen gas is below a predetermined oxygen level.

4. (currently amended) An apparatus ~~according to claim 1,~~ for compressing and storing an oxygen-enriched gas, comprising:

a concentrated oxygen source having oxygen-enriched gas therein, wherein said oxygen enriched gas contains at least about 50% oxygen by volume;

a radial piston compressor operatively connected to said oxygen source to receive the at least 50% oxygen by volume gas therefrom, said radial compressor being capable of compressing said oxygen-enriched gas to a high pressure; and

a high-pressure storage container for portable storage of said high-pressure oxygen-enriched gas;

wherein said oxygen-enriched gas is prioritized by a portion being capable of being fed to a person and a portion being capable of being fed to a compressor, wherein said prioritization includes termination the flow of said oxygen-enriched gas to said high-pressure storage container when said enriched oxygen gas is below a predetermined oxygen level.

5. (original) An apparatus according to claim 3, wherein said radial compressor contains a plurality of cylinders each having a piston therein, wherein said pistons are radially arranged around a crankshaft, wherein said oxygen-enriched gas is sequentially compressed by each

piston, and wherein each sequential cylinder has a smaller compressible area than the previous cylinder.

6. (original) An apparatus according to claim 4, wherein said radial compressor contains a plurality of cylinders each having a piston therein, wherein said pistons are radially arranged around a crankshaft, wherein said oxygen-enriched gas is sequentially compressed by each piston, and wherein each sequential cylinder has a smaller compressible area than the previous cylinder.

7. (original) An apparatus according to claim 3, wherein said oxygen source is an oxygen concentrator, and wherein said enriched oxygen gas is at least 85% oxygen by volume.

8. (original) An apparatus according to claim 4, wherein said oxygen source is an oxygen concentrator, and wherein said enriched oxygen gas is at least 85% oxygen by volume.

9. (original) An apparatus according to claim 5, wherein said oxygen source is an oxygen concentrator, and wherein said enriched oxygen gas is at least 90% oxygen by volume.

10. (original) An apparatus according to claim 6, wherein said oxygen source is an oxygen concentrator, and wherein said enriched oxygen gas is at least 90% oxygen by volume.

11-22 (canceled).

23. (currently amended) A process ~~according to claim 22,~~ for filling a high-pressure portable container with concentrated oxygen under high pressure, comprising the steps of:
providing a concentrated oxygen source of at least about 50% oxygen by volume,
transferring said concentrated oxygen to a radial compressor at an initial pressure,
compressing said concentrated oxygen transferred to said compressor to a high pressure; and
transferring said high pressure concentrated oxygen from said radial compressor to a portable container for subsequent use by a patient;
wherein said radial compressor contains a plurality of cylinders each having a piston therein, wherein said pistons are radially arranged around a crankshaft, wherein said oxygen-enriched gas is sequentially compressed by each piston, and wherein each sequential piston compresses said concentrated oxygen to a higher pressure than the previous piston;
wherein the concentration of said concentrated oxygen is at least 90% by volume, and including compressing said concentrated oxygen to a pressure of from about 500 to about 4,000 psi in said portable container; and
including prioritizing said concentrated oxygen by feeding a portion of said oxygen to a conduit capable of supplying said oxygen to a person and feeding a portion of said oxygen to said radial compressor.

24. (original) A process according to claim 23, including pressurizing said concentrated oxygen to a pressure of from about 1,500 to about 3,000 psi in said portable container.

25-27 (canceled)

28. (previously presented) An apparatus as set forth in claim 6 wherein each said sequential cylinder is located in a non-adjacent position circumferentially about said crankshaft of said compressor.

29. (previously presented) An apparatus as set forth in claim 28 wherein said radial compressor comprises five cylinders, five pistons located one in each one of said five cylinders, and five connecting rods, each one of said pistons being connected by a respective one of said connecting rods to said crankshaft.

30. (previously presented) An apparatus as set forth in claim 29 wherein said crankshaft has a single throw, and said connecting rods are connected to and driven by said single throw of said crankshaft, said five pistons reciprocating in one radial plane.

31. (previously presented) An apparatus as set forth in claim 30 wherein said radial compressor compresses said oxygen-enriched gas to a pressure of from about 1,500 psi to about 3,000 psi.

32. (previously presented) An apparatus as set forth in claim 6 wherein said radial compressor comprises:

- five cylinders;
- five pistons located one in each one of said five cylinders;
- five connecting rods, each one of said pistons being connected by a respective one of said connecting rods to said crankshaft;
- said crankshaft having a single throw;
- said connecting rods being connected to and driven by said single throw of said crankshaft so that said five pistons reciprocate in one radial plane.

33. (previously presented) An apparatus as set forth in claim 32 wherein said five cylinders are spaced apart in an array about said crankshaft and wherein said five cylinders compress in a sequence such that no two sequentially compressing cylinders are adjacent each other in said array but are separated from each other by either one or two other cylinders.

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34. (previously presented) An apparatus as set forth in claim 33 wherein said radial compressor compresses said oxygen-enriched gas to a pressure of from about 1,500 psi to about 3,000 psi.

35-38 (canceled)